



Python as a “GIS Intern”

Presented by:
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Headington Energy Partners

Python as a “GIS Intern”

- Scheduling scripts
- File management
- Working with large datasets from different sources
- Creating detailed and useful depth severance labels

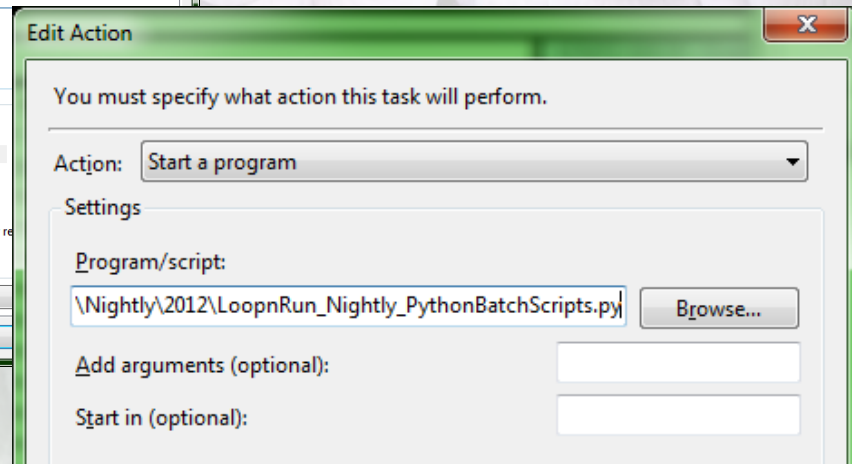
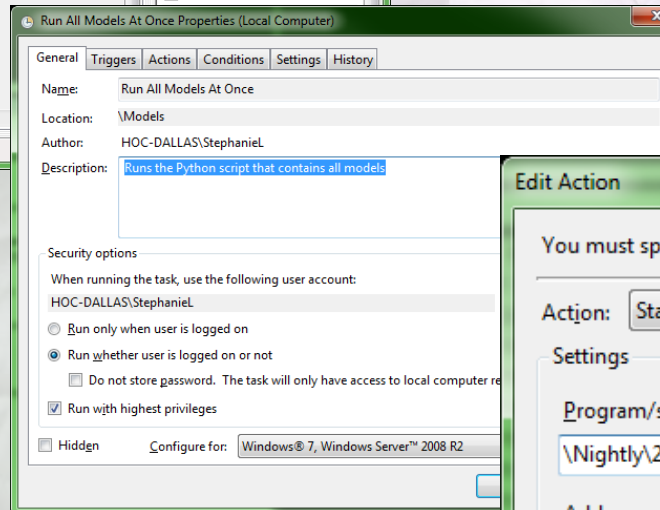
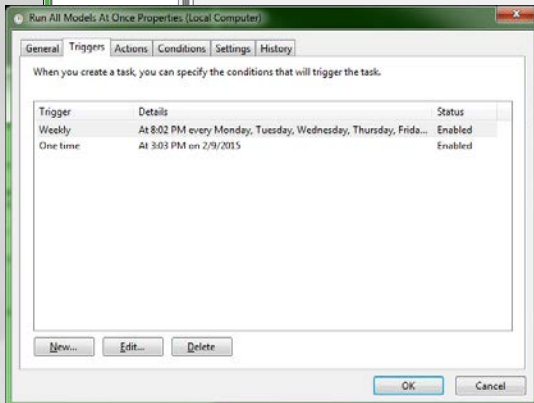
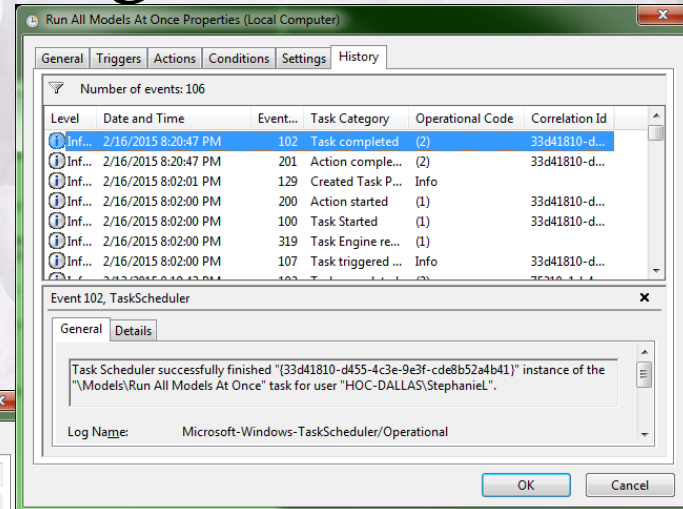
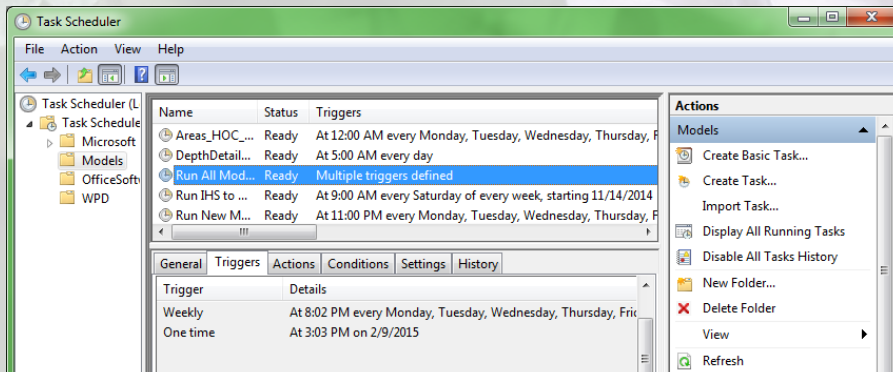
Scheduling scripts

Let Python do the work while you sleep!

- Task Scheduler
- Multiple Scripts within One Script
- Email Notification

Scheduling scripts

Task Scheduler Settings



Scheduling scripts

Multiple Scripts within One Script

- Run All Scripts within a Network Folder
- Be Aware of Dependency

Multiple Scripts within One Script

```
# Import system modules
import os, sys, time, smtplib, subprocess, arcpy

#Python File Run for copy committed mdb
# Set the date.
Date4 = time.strftime("%A, %B %d, %Y", time.localtime())

# Set the time.
Time4 = time.strftime("%H:%M:%S", time.localtime())

DT4 = str(Date4) + " " + str(Time4)

print "Started at " + str(DT4)
```

```
py4_directory = "\\Mck-vfs1\GIS\"
for dirname, dirnames, filenames in os.walk(py4_directory):
    #for subdirname in dirnames:
        #print os.path.join(dirname, subdirname)
    for filename in filenames:
        py4_file = os.path.join(dirname, filename)
        print py4_file
        if ".py" in filename:
            print "Opening " + filename
            sub = subprocess.Popen([sys.executable, py4_file], shell = True)
            sub.communicate()
        else:
            print "I'm Done with Copying" + filename
```

```
#Python File Run for ALL Models
# Set the date.
Date1 = time.strftime("%A, %B %d, %Y", time.localtime())

# Set the time.
Time1 = time.strftime("%H:%M:%S", time.localtime())

DT1 = str(Date1) + " " + str(Time1)

print "Started at " + str(DT1)

py5_directory = "\\Mck-vfs1\GIS\Data\TOBIN_DATA\LEGAL_PADS\Nightly\2012\Python2"
for dirname, dirnames, filenames in os.walk(py5_directory):
    #for subdirname in dirnames:
        #print os.path.join(dirname, subdirname)
    for filename in filenames:
        py5_file = os.path.join(dirname, filename)
        print py5_file
        if ".py" in filename:
            print "Opening " + filename
            sub = subprocess.Popen([sys.executable, py5_file], shell = True)
            sub.communicate()
        else:
            print "I'm Done with All Models"

print "All Finished"
```

Scheduling scripts

Email Notification

- Know What Ran and How It Ran
 - Customize the Email
 - Script Name
 - Script Task
 - Messages
 - Run Time

Email Notification

```
def noticeEMail(starttime, usr, psw, fromaddr, toaddr):  
  
• starttime = str(DT1)  
• usr = 'stephaniereneelong@gmail.com'  
• psw = 'xxx'  
• fromaddr = 'stephaniereneelong@gmail.com'  
• toaddr = 'stephaniereneelong@gmail.com'  
  
# Initialize SMTP server  
• server=smtplib.SMTP('smtp.gmail.com:587')  
• server.starttls()  
• server.login(usr,psw)  
  
• if __name__ == '__main__':  
    # Start time of script  
    starttime = str(DT1)  
  
    # Fill these in with the appropriate info...  
    • usr = 'stephaniereneelong@gmail.com'  
    • psw = 'xxx'  
    • fromaddr = 'stephaniereneelong@gmail.com'  
    • toaddr = 'stephaniereneelong@gmail.com'  
    # Set the date.  
    • Date4 = time.strftime("%m-%d-%Y", time.localtime())  
    #  
    # Set the time.  
    • Time4 = time.strftime("%I:%M:%S %p", time.localtime())  
  
    # End time of script  
    • endtime=str(Date4) + " " + str(Time4)  
  
    # Send notification email  
    • noticeEMail(starttime, usr, psw, fromaddr, toaddr)  
  
# Send email  
• senddate=endtime  
• subject="Results from All Python Run"  
• m="Date: %s\r\nFrom: %s\r\nTo: %s\r\nSubject: %s\r\nX-Mailer: My-Mail\r\n\r\n" % (senddate, fromaddr, toaddr, subject)  
• msg='Job runtime: '+ str(Date2) + " " + str(Time2) + str(Date4) + " " + str(Time4)  
  
• server.sendmail(fromaddr, toaddr, m+msg)  
• server.quit()  
  
• print "Email Sent"
```


File management

Backup First, Update Second

- Use CreateUniqueName
 - Instant Backup
 - Data Source Link Maintained

Backup First, Update Second

```
# Import arcpy module
import arcpy
import time
import smtplib

# Set the date.
Date1 = time.strftime("%m-%d-%Y", time.localtime())
# Set the time.
Time1 = time.strftime("%I:%M:%S %p", time.localtime())
# Print start time
print "Process started at " + str(Date1) + " " + str(Time1) + "." + "\n"

# Local variables:
Shapes_Propects = "\\Mck-vfs1\GIS\Data\TOBIN_DATA\UPDATES\Shapes\TGSHeadington.mdb\Analysis Layers\Prospects"
unique_name1 = arcpy.CreateUniqueName("\\Mck-vfs1\GIS\Data\TOBIN_DATA\UPDATES\LiveUpdate\HeadingtonTracts.gdb\Prospects")
unique_name2 = arcpy.CreateUniqueName("\\Mck-vfs1\GIS\Data\TOBIN_DATA\UPDATES\Shapes\TGSHeadington.mdb\Analysis Layers\Prospects")

# Process: Rename Prospects from TGSHeadington in Shape Folder
lockTest = arcpy.TestSchemaLock(Prospects_Live)
if lockTest:
    ar # Process: Dissolve
    pr arcpy.Dissolve_management(EnertiaTractsSelect, Shapes_Propects, "Code", "dbo_TGSLeaseTracts_CopyRows_NetAcreage SUM; dbo_TGSLeaseTracts_CopyRows_GrossAcreage
else:
    pr print "Dissolved"
    pr DissolveMessages = arcpy.GetMessages()
Shapes
print print "Finished Rename, Add, Join, Dissolve"

lockTest = arcpy.TestSchemaLock(Prospects_Live)
if lockTest:
    arcpy.Rename_management(Prospects_Live, unique_name1, "FeatureClass")
    print "Success Changing Prospects_Live Name"
    arcpy.FeatureClassToFeatureClass_conversion(Shapes_Propects, HeadingtonTracts_gdb_Live, "Prospects")
else:
    print "Unable to acquire the necessary schema lock ProspectsTracts_Live"
EnertiaTracts_LiveMessages = arcpy.GetMessages()
#
print "Finished with all"

# Set the date.
Date = time.strftime("%m-%d-%Y", time.localtime())

# Set the time.
Time = time.strftime("%I:%M:%S %p", time.localtime())

# Print complete time
print "Process completed at " + str(Date) + " " + str(Time) + "."

def noticeEMail(starttime, usr, psw, fromaddr, toaddr):
```

Working with large datasets from multiple sources

Budget Constraints = Creativity Needed

- Multiple Sources:
 - DrillingInfo, IHS, RRC, BLM, GLO
- IHS Example:
 - Well Updates

Working with large datasets from multiple sources

IHS Example: Well Updates

The screenshot displays the IHS Enerdeg Browser interface. The browser address bar shows the URL <https://penerdeq.ihs...>. The page title is "Enerdeg Browser" and the current view is "Well & Production". The "My Files" section contains a list of files with a table below it. A yellow warning box states: "Note: Outputs are only saved for 14 days. To permanently save an output to your computer, click...".

Name	Date modified	Type	Size
Spatialgonzalez.zip	2/17/2015 11:13 AM	Compressed (zipp...	116 KB
USProdAlloc.dbf	2/17/2015 11:17 AM	DBF File	115 KB
USProdAlloc.lyr	2/17/2015 11:17 AM	ArcGIS Layer	13 KB
USProdAlloc.prj	2/17/2015 11:17 AM	PRJ File	1 KB
USProdAlloc.shp	2/17/2015 11:17 AM	SHP File	8 KB
USProdAlloc.shx	2/17/2015 11:17 AM	SHX File	2 KB
USProdUnAlloc.dbf	2/17/2015 11:17 AM	DBF File	107 KB
USProdUnAlloc.lyr	2/17/2015 11:17 AM	ArcGIS Layer	13 KB
USProdUnAlloc.prj	2/17/2015 11:17 AM	PRJ File	1 KB
USProdUnAlloc.shp	2/17/2015 11:17 AM	SHP File	7 KB
USProdUnAlloc.shx	2/17/2015 11:17 AM	SHX File	2 KB
USWellBore.dbf	2/17/2015 11:17 AM	DBF File	3 KB
USWellBore.lyr	2/17/2015 11:17 AM	ArcGIS Layer	7 KB
USWellBore.prj	2/17/2015 11:17 AM	PRJ File	1 KB
USWellBore.shp	2/17/2015 11:17 AM	SHP File	89 KB
USWellBore.shx	2/17/2015 11:17 AM	SHX File	1 KB
USWellBot.dbf	2/17/2015 11:17 AM	DBF File	19 KB
USWellBot.lyr	2/17/2015 11:17 AM	ArcGIS Layer	17 KB
USWellBot.prj	2/17/2015 11:17 AM	PRJ File	1 KB
USWellBot.shp	2/17/2015 11:17 AM	SHP File	2 KB
USWellBot.shx	2/17/2015 11:17 AM	SHX File	1 KB
USWells.dbf	2/17/2015 11:17 AM	DBF File	68 KB
USWells.lyr	2/17/2015 11:17 AM	ArcGIS Layer	18 KB
USWells.prj	2/17/2015 11:17 AM	PRJ File	1 KB
USWells.shp	2/17/2015 11:17 AM	SHP File	11 KB
USWells.shx	2/17/2015 11:17 AM	SHX File	3 KB

<input type="checkbox"/>	Name	Output Type	Request Time	Status	Remaining Days	Size
<input checked="" type="checkbox"/>	Spatialgonzalez.zip	EXPORTS	2/17/15, 10:12 AM	Done	14	115 KB

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Working with large datasets from multiple sources

IHS Example: Well Updates

```
# Set workspace.
• env.workspace = FinalLoc
# List the folders.
• ws = arcpy.ListWorkspaces("", "Folder")
# print ws
• for s in ws:
    # print s
    • walk = arcpy.da.Walk(s, datatype="FeatureClass", type="Any")

    • for dirpath, dirnames, filenames in walk:
        • for filename in filenames:
            • load = os.path.join(dirpath, filename)
            • print load

            # Process: Append the feature classes into the dest feature class
            • if filename == "USWells.shp":
                • arcpy.Append_management(load, appenddestAllWells, "NO_TEST")
                • print "Append " + filename
            • else:
                • print "Skip " + filename
            • # print arcpy.GetMessages()
            • print "---Process Finished---"

• print "Finished with Wells*****"
```

Creating detailed and useful depth severance labels

Give them what they want!

- Land System (Enertia)
 - Data Entry Methods and Limits
- Map Expectations
 - Tweaking the data so that Geologist/Engineer/Landmen find maps useful

Creating detailed and useful depth severance labels

- Land System (Enertia)
 - Data Entry Methods
 - SQL Server Database
 - Multiple Tables behind Dialogue Forms
 - Owner Deck:
 - Detailed names

Table
dbo_TGSLeaseTracts_CopyRows

TractCode	Lessor	Lessee	LeaseDate	TrctOwnershipTyp
305172.011.01	Frieda, michael dave Davidson	Caribou Four Corners Inc	3/14/1979	UNK
421699.006.01	Leland Da	(See File)	4/1/1954	UNK
305172.015.01	Elmer & Ct	Caribou Four Corners Inc	3/14/1979	UNK
424881.001.01	Nelle W. M	(See File)	1/6/1945	UNK
423895.001.01	Mustang C	(See File)	6/1/1986	UNK
335071.001.01	USA NDM-	Frances M Gagarin	12/1/1975	WI
426587.024.01	Royalty St	Columbian Fuel Corp	4/17/1964	WI
305050.000.01	M R & Nor	Caribou Four Corners Inc	10/26/1979	UNK
355118.002.01	R Joe Stej	(See File)	10/30/1992	UNK
354917.024.01	Russell El	(See File)	11/25/1991	UNK
171968.002.01	Elizabeth F	Sun Oil Company (delaware)	5/4/1979	UNK
262418.001.01	Verlin W. I	(See File)	8/1/1986	UNK
425238.000.01	Padre Cau	Humble Oil & Refining Co	5/26/1951	UNK
424433.001.01	Brazos En	(See File)	11/1/1982	UNK
335240.000.02	Burlington	Headington Oil, Limited Partnership	1/1/2000	WI
420017.037.01	Anna K. M	Headington Oil Company	6/18/1991	UNK
354917.031.01	Dannie A. Gower	(See File)	11/19/1991	UNK

(0 out of 3019 Selected)

Tract List

427152.000.01 | John G Kennedy Jr et ux "E" Tr 1 | 00001 | Eff Period 01/01/1901

Type	Owner	Name	Working Interest	Net Rev Interest	Entered
BusAssoc	04305	Auror...	0.04000000	0.00000000	Acre
BusAssoc	08624	Bomar...	0.04000000	0.00000000	Acre
Corp	101	Headington Oil Company LLC	0.26666666	0.00000000	Acre
BusAssoc	29567	Gryp...	0.04000000	0.00000000	Acre
BusAssoc	43202	Land-V...	0.26666667	0.00000000	Acre
BusAssoc	43203	Land-C...	0.26666667	0.00000000	Acre
BusAssoc	45932	Lone...	0.04000000	0.00000000	Acre
BusAssoc	70598	SMK...	0.04000000	0.00000000	Acre

Lease Status: Approved

Creating detailed and useful depth severance labels

- Land System (Enertia)
 - Limits
 - Depth Detail Screen:
 - Limitations to acceptable entries

The screenshot shows a software window titled "Tract List for State of New Mex E-5301(3 & 4) Tr 1". The "Depth Detail" tab is active. The interface includes the following elements:

- Tract List:** 302526.001.01
- Tract Detail:** State of New Mex E-5301(3 & 4) Tr 1
- Depth Detail:** 00001
- Owner Acreage:** (empty)
- Title Rights:** All Depths
- Copy Tract Deck to Depth Details:** (button)
- Beg Depth:** 0
- End Depth:** 99,999
- Depth Seq:** 1
- Land Wl Deck:** 15884
- Description:** ORRI as to the Wolfcamp formation only.
- Corp Interest Totals:**

Royalty Interest	0.00000000
Override Interest	0.00000000
Working Interest	0.90361600
- Data Table:**

Depth	Begin	End	Wl Deck Code	Total Corp RI	Total Corp ORRI	Total Corp Wl	Total Corp Gwl	Descri
1	0	99999	15884	0.00000000	0.00000000	0.90361600	0.00000000	
- Buttons:** Deck, Map Ref, Add, Edit, Delete, OK, Cancel, Close, DkTot, navigation arrows.
- Lease Status:** Approved

Creating detailed and useful depth severance labels

How do you get from this...

Tract List for Tr 5

426652.000.05 Tr 5 00001

Title Rights: Interest varies by depth

Beg Depth: 88,883 Qualifier/Frm: TOP Wolfcamp

End Depth: 88,884 Qualifier/Frm: BASE Wolfcamp

Depth Seq: 3 Land WI Deck: 27180

Description: ORRI as to the Wolfcamp formation only.

Depth	Begin	End	WI Deck Code	Total Corp RI	Total Corp ORRI	Total Corp WI	Total Corp GWI
1	0	2695	25314	0.00000000	0.02343750	0.00000000	0.00000000
2	2695	88882	25323	0.00000000	0.12500000	0.00000000	0.00000000
3	88883	88884	27180	0.00000000	0.02112400	0.00000000	0.00000000
4	88885	88886	25314	0.00000000	0.02343750	0.00000000	0.00000000
5	88887	99999	15968	0.00000000	0.00000000	1.00000000	0.00000000

Tract List for John G Kennedy Jr et ux 'E' Tr 1

427152.000.01 John G Kennedy Jr et ux 'E' Tr 1 00001 Eff Period 01/01/1901

Type	Owner	Name	Working Interest	Net Rev Interest	Entered
BusAssoc	04305	Auror...	0.04000000	0.00000000	Acre
BusAssoc	08624	Boma...	0.04000000	0.00000000	Acre
Corp	101	Headington Oil Company LLC	0.26666666	0.00000000	Acre
BusAssoc	29567	Gryp...	0.04000000	0.00000000	Acre
BusAssoc	43202	Land-V...	0.26666667	0.00000000	Acre
BusAssoc	43203	Land-V...	0.26666667	0.00000000	Acre
BusAssoc	45932	Lone...	0.04000000	0.00000000	Acre
BusAssoc	70598	SMK...	0.04000000	0.00000000	Acre

PYTHON!

.....to this?

0 - 2725 NRI:0.023438 HRI
2725 - TOP Wolfcamp NRI: 0.125 HRI
TOP Wolfcamp -BASE Wolfcamp NRI: 0.021124 HRI
BASE Wolfcamp - 100 ft bel Base Wolfcamp NRI: 0.125 HRI
100 ft bel Base Wolfcamp - COE LHI: 1 HRI



Creating detailed and useful depth severance labels

- Map Expectations
 - Tweaking the data so that Geologist/Engineer/Landmen find maps useful
 - Owner Names
 - Depth Values or Formations
 - Minimal Map Real Estate
 - Rollup Internal Interests
 - No Zero Values

Creating detailed and useful depth severance labels

- Map Expectations
 - Tweaking the data
 - Owner Names

TractCode	Lessor	Lessee	LeaseDate	TrctOwnershipTyp
305172.011.01	Frieda, michael dave Davidson	Caribou Four Corners Inc	3/14/1979	UNK
421899.006.01	Leland Da	(See File)	4/1/1954	UNK
305172.015.01	Elmer & Ct	Caribou Four Corners Inc	3/14/1979	UNK
424881.001.01	Nelle W. M	(See File)	1/6/1945	UNK
423895.001.01	Mustang C	(See File)	6/1/1986	UNK
335071.001.01	USA NDM-	Frances M Gagarin	12/1/1975	WI
426587.024.01	Royalty St	Columbian Fuel Corp	4/17/1964	WI

Type	Owner	Name	Working Interest	Net Rev Interest	Entered
BusAssoc	04305	Auror...	0.04000000	0.00000000	Acre
BusAssoc	08624	Bomar...	0.04000000	0.00000000	Acre
Corp	101	Headington Oil Company LLC	0.26666666	0.00000000	Acre
BusAssoc	29567	Gryp...	0.04000000	0.00000000	Acre
BusAssoc	43202	Land-V...	0.26666667	0.00000000	Acre
BusAssoc	43203	Land-C...	0.26666667	0.00000000	Acre
BusAssoc	45932	Lone...	0.04000000	0.00000000	Acre
BusAssoc	70598	SMK...	0.04000000	0.00000000	Acre

```
#Process: Change Head... to HOC
# Process: Calculate Field
arcpy.CalculateField_management(dbo_TGStractDepthDetailOwner_CopyRows, "OwnerName", "!OwnerName!.replace('Headington Oil Company LLC', 'HOC')", "PYTHON_9.3", "")
print "Calc HOC"
```

424433.001.01	Brazos En	(See File)	11/1/1982	UNK
335240.000.02	Burlington	Headington Oil, Limited Partnership	1/1/2000	WI
420017.037.01	Anna K. M	Headington Oil Company	6/18/1991	UNK
354917.031.01	Dannie A. ...	(See File)	11/19/1991	UNK

Lease Status: Approved

Close

Creating detailed and useful depth severance labels

- Map Expectations
 - Tweaking the data
 - Depth Values or Formations

Depth	Begin	End	W/ Deck Code	Total Corp RI	Total Corp ORRI	Total Corp W/ I	Total Corp Gw/ I	
1	0	2695	25314	0.00000000	0.02343750	0.00000000	0.00000000	ORRI
2	2695	88882	25323	0.00000000	0.12500000	0.00000000	0.00000000	12.5%
3	88883	88884	27180	0.00000000	0.02112400	0.00000000	0.00000000	ORRI

```
print "Done Calc Field Management From Form"
#Change 8888x to Formation
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "BegInt", "!BegInt!.replace('88881', !BegIntFormFrom!)", "PYTHON_9.3", "")
• print "Calc 88881"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "BegInt", "!BegInt!.replace('88883', !BegIntFormFrom!)", "PYTHON_9.3", "")
• print "Calc 88883"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "BegInt", "!BegInt!.replace('88885', !BegIntFormFrom!)", "PYTHON_9.3", "")
• print "Calc 88885"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "BegInt", "!BegInt!.replace('88887', !BegIntFormFrom!)", "PYTHON_9.3", "")
• print "Calc 88887"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "BegInt", "!BegInt!.replace('88889', !BegIntFormFrom!)", "PYTHON_9.3", "")
• print "Calc 88889"
#
#Change 99999 to COE
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "EndInt", "!EndInt!.replace('99999', 'COE')", "PYTHON_9.3", "")
• print "Calc COE"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "EndInt", "!EndInt!.replace('999999', 'COE')", "PYTHON_9.3", "")
• print "Calc COE"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "EndInt", "!EndInt!.replace('9999999', 'COE')", "PYTHON_9.3", "")
• print "Calc COE"
• print "Calc 88886"
• arcpy.CalculateField_management(dbo_TGStractDepthDetail_CopyRows, "EndInt", "!EndInt!.replace('88888', !EndIntFormTo!)", "PYTHON_9.3", "")
• print "Calc 88888"
#
```


Creating detailed and useful depth severance labels

- Map Expectations
 - Minimal Map Real Estate

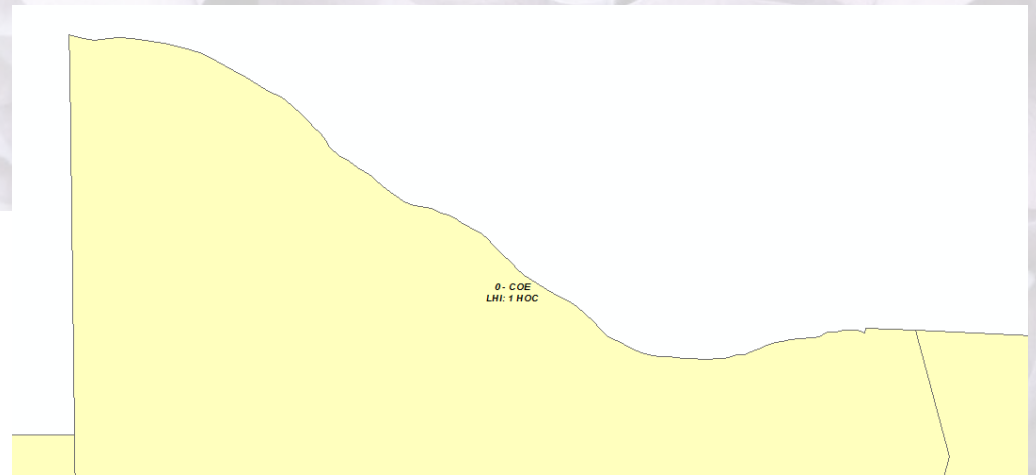
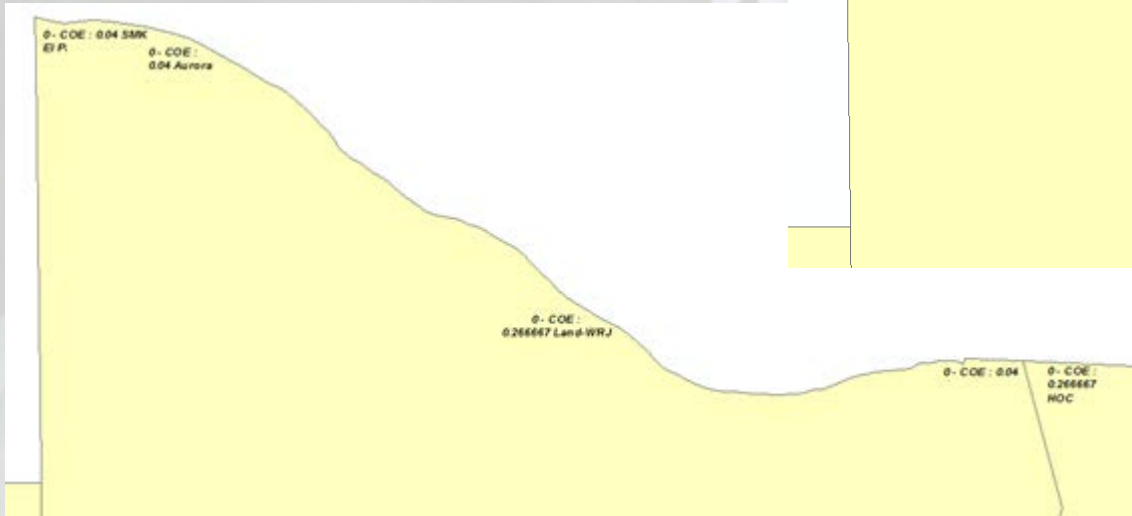
0 - 2725 : 0.023438 NRI
2725 - TOP Wolfcamp : 0.125 NRI
TOP Wolfcamp - BASE Wolfcamp : 0.021124 NRI
BASE Wolfcamp - 100 ft bel Base Wolfcamp : 0.125 NRI
100 ft bel Base Wolfcamp - COE : 1 WIHRI

0 - 2725 : 0.023438 NRI
2725 - TOP Wolfcamp : 0.125 NRI
TOP Wolfcamp - BASE Wolfcamp : 0.021124 NRI
BASE Wolfcamp - 100 ft bel Base Wolfcamp : 0.125 NRI
100 ft bel Base Wolfcamp - COE : 1 WIHRI

```
FindLabel = strExp1 &vbnewline& strExp2 &vbnewline& strExp3 &vbnewline& strExp4 &vbnewline&  
strExp5nri &vbnewline& strExp5wi &vbnewline& strExp6nri &vbnewline& strExp6wi &vbnewline& strExp7nri  
&vbnewline& strExp7wi  
End Function
```

Creating detailed and useful depth severance labels

- Map Expectations
 - Rollup Internal Interests



Creating detailed and useful depth severance labels

- Map Expectations
 - No Zero Values

Label Expression =
[Seq1_IntervalTxt] &" : "& [1_1_SumOfDcmIWo]&" WI: "& [1_1_SumOfDcmINe] &
NRI "&vbnewline&
[Seq2_IntervalTxt] &" : "& [2_2_SumOfDcmIWo]&" WI: "& [2_2_SumOfDcmINe] &
NRI "& vbnewline&
[Seq3_IntervalTxt] &" : "& [3_3_SumOfDcmIWo]&" WI: "& [3_3_SumOfDcmINe] &
NRI "& vbnewline&
[Seq4_IntervalTxt] &" : "& [4_4_SumOfDcmIWo]&" WI: "& [4_4_SumOfDcmINe] &
NRI "& vbnewline&
[Seq5_IntervalTxt] &" : "& [5_5_SumOfDcmIWo]&" WI: "& [5_5_SumOfDcmINe] &
NRI "& vbnewline&
[Seq6_IntervalTxt] &" : "& [6_6_SumOfDcmIWo]&" WI: "& [6_6_SumOfDcmINe] &
NRI "& vbnewline&
[Seq7_IntervalTxt] &" : "& [7_7_SumOfDcmIWo]&" WI: "& [7_7_SumOfDcmINe] &
NRI

0 - 2725 : 0 WI 0.023438 NRI
2725 - TOP Wolfcamp : 0 WI 0.125 NRI
TOP Wolfcamp - BASE Wolfcamp : 0 WI 0.021124 NRI
BASE Wolfcamp - 100 ft bel Base Wolfcamp : 0 WI 0.125 NRI
100 ft bel Base Wolfcamp - COE : 1 WI 0 NRI

0 - 2725 NRI:0.023438 HRI
2725 - TOP Wolfcamp NRI: 0.125 HRI
TOP Wolfcamp -BASE Wolfcamp NRI: 0.021124 HRI
BASE Wolfcamp - 100 ft bel Base Wolfcamp NRI: 0.125 HRI
100 ft bel Base Wolfcamp - COE LHI: 1 HRI

Creating detailed and useful depth severance labels

The Nitty Gritty

- Python
 - Include all fields to be used
 - Define Depth Details
 - Create If/Then Statements
 - Define Resulting Label

Creating detailed and useful depth severance labels

- Python
 - Include all fields to be used:

```
Function FindLabel ( [Seq1_IntervalTxt] , [1_1_SumOfDcmlNe] , [1_1_SumOfDcmlWo],  
[Seq1_OwnerName] , [2_Seq2_IntervalTxt] , [2_2_SumOfDcmlNe] ,  
[2_2_SumOfDcmlWo], [2_Seq2_OwnerName] , [3_Seq3_IntervalTxt] ,  
[3_3_SumOfDcmlNe] , [3_3_SumOfDcmlWo], [3_Seq3_OwnerName] ,  
[4_Seq4_IntervalTxt] ,  
[4_4_SumOfDcmlNe] , [4_4_SumOfDcmlWo], [4_Seq4_OwnerName] ,  
[5_Seq5_IntervalTxt] , [5_5_SumOfDcmlNe] , [5_5_SumOfDcmlWo],  
[5_Seq5_OwnerName] ,  
[6_Seq6_IntervalTxt] , [6_6_SumOfDcmlNe] , [6_6_SumOfDcmlWo],  
[6_Seq6_OwnerName] , [7_Seq7_IntervalTxt] , [7_7_SumOfDcmlNe] ,  
[7_7_SumOfDcmlWo],  
[7_Seq7_OwnerName], [Seq1_OwnerCode] , [2_Seq2_OwnerCode] ,  
[3_Seq3_OwnerCode] , [4_Seq4_OwnerCode] , [5_Seq5_OwnerCode] ,  
[6_Seq6_OwnerCode] , [7_Seq7_OwnerCode] )
```


Creating detailed and useful depth severance labels

- Python
 - Define Depth Details

```
Depth1_winri = [Seq1_IntervalTxt] &" LHI: "& [1_1_SumOfDcmlWo]&" NRI: "& [1_1_SumOfDcmlNe] &" "&[Seq1_OwnerName]
Depth1_nri = [Seq1_IntervalTxt] &" NRI: "& [1_1_SumOfDcmlNe]
Depth1_wi = [Seq1_IntervalTxt] &" LHI: "& [1_1_SumOfDcmlWo]&" "& [Seq1_OwnerName]
Depth2_winri = [2_Seq2_IntervalTxt] &" LHI: "& [2_2_SumOfDcmlWo]&" NRI: "& [2_2_SumOfDcmlNe] &" "&[2_Seq2_OwnerName]
Depth2_nri = [2_Seq2_IntervalTxt] &" NRI: "& [2_2_SumOfDcmlNe]
Depth2_wi = [2_Seq2_IntervalTxt] &" LHI: "& [2_2_SumOfDcmlWo]&" "& [2_Seq2_OwnerName]
Depth3_winri = [3_Seq3_IntervalTxt] &" LHI: "& [3_3_SumOfDcmlWo]&" NRI: "& [3_3_SumOfDcmlNe] &" "&[3_Seq3_OwnerName]
Depth3_nri = [3_Seq3_IntervalTxt] &" NRI: "& [3_3_SumOfDcmlNe]
Depth3_wi = [3_Seq3_IntervalTxt] &" LHI: "& [3_3_SumOfDcmlWo]&" "& [3_Seq3_OwnerName]
Depth4_winri = [4_Seq4_IntervalTxt] &" LHI: "& [4_4_SumOfDcmlWo]&" NRI: "& [4_4_SumOfDcmlNe] &" "&[4_Seq4_OwnerName]
Depth4_nri = [4_Seq4_IntervalTxt] &" NRI: "& [4_4_SumOfDcmlNe]
Depth4_wi = [4_Seq4_IntervalTxt] &" LHI: "& [4_4_SumOfDcmlWo]&" "& [4_Seq4_OwnerName]
Depth5_winri = [5_Seq5_IntervalTxt] &" LHI: "& [5_5_SumOfDcmlWo]&" NRI: "& [5_5_SumOfDcmlNe] &" "&[5_Seq5_OwnerName]
Depth5_nri = [5_Seq5_IntervalTxt] &" NRI: "& [5_5_SumOfDcmlNe]
Depth5_wi = [5_Seq5_IntervalTxt] &" LHI: "& [5_5_SumOfDcmlWo]&" "& [5_Seq5_OwnerName]
Depth6_winri = [6_Seq6_IntervalTxt] &" LHI: "& [6_6_SumOfDcmlWo]&" NRI: "& [6_6_SumOfDcmlNe] &" "&[6_Seq6_OwnerName]
Depth6_nri = [6_Seq6_IntervalTxt] &" NRI: "& [6_6_SumOfDcmlNe]
Depth6_wi = [6_Seq6_IntervalTxt] &" LHI: "& [6_6_SumOfDcmlWo]&" "& [6_Seq6_OwnerName]
Depth7_winri = [7_Seq7_IntervalTxt] &" LHI: "& [7_7_SumOfDcmlWo]&" NRI: "& [7_7_SumOfDcmlNe] &" "&[7_Seq7_OwnerName]
Depth7_nri = [7_Seq7_IntervalTxt] &" NRI: "& [7_7_SumOfDcmlNe]
Depth7_wi = [7_Seq7_IntervalTxt] &" LHI: "& [7_7_SumOfDcmlWo]&" "& [7_Seq7_OwnerName]
```


Creating detailed and useful depth severance labels

- Python
 - Create If/Then Statements

```
if ((([1_1_SumOfDcmlNe]<> 0) AND ([1_1_SumOfDcmlWo]= 0)) then Depth1 = Depth1_nri
if ((([2_2_SumOfDcmlNe]<> 0) AND ([2_2_SumOfDcmlWo]= 0)) then Depth2 = Depth2_nri
if ((([3_3_SumOfDcmlNe]<> 0) AND ([3_3_SumOfDcmlWo]= 0)) then Depth3 = Depth3_nri
if ((([4_4_SumOfDcmlNe]<> 0) AND ([4_4_SumOfDcmlWo]= 0)) then Depth4 = Depth4_nri
if ((([5_5_SumOfDcmlNe]<> 0) AND ([5_5_SumOfDcmlWo]= 0)) then Depth5 = Depth5_nri
if ((([6_6_SumOfDcmlNe]<> 0) AND ([6_6_SumOfDcmlWo]= 0)) then Depth6 = Depth6_nri
if ((([7_7_SumOfDcmlNe]<> 0) AND ([7_7_SumOfDcmlWo]= 0)) then Depth7 = Depth7_nri
```

```
if ((([1_1_SumOfDcmlNe] = 0) AND ([1_1_SumOfDcmlWo] <> 0)) then Depth1 = Depth1_wi
if ((([2_2_SumOfDcmlNe] = 0) AND ([2_2_SumOfDcmlWo] <> 0)) then Depth2 = Depth2_wi
if ((([3_3_SumOfDcmlNe] = 0) AND ([3_3_SumOfDcmlWo] <> 0)) then Depth3 = Depth3_wi
if ((([4_4_SumOfDcmlNe] = 0) AND ([4_4_SumOfDcmlWo] <> 0)) then Depth4 = Depth4_wi
if ((([5_5_SumOfDcmlNe] = 0) AND ([5_5_SumOfDcmlWo] <> 0)) then Depth5 = Depth5_wi
if ((([6_6_SumOfDcmlNe] = 0) AND ([6_6_SumOfDcmlWo] <> 0)) then Depth6 = Depth6_wi
if ((([7_7_SumOfDcmlNe] = 0) AND ([7_7_SumOfDcmlWo] <> 0)) then Depth7 = Depth7_wi
```

```
if ((([1_1_SumOfDcmlNe]<> 0) AND ([1_1_SumOfDcmlWo]<> 0)) then Depth1 = Depth1_winri
if ((([2_2_SumOfDcmlNe]<> 0) AND ([2_2_SumOfDcmlWo]<> 0)) then Depth2 = Depth2_winri
if ((([3_3_SumOfDcmlNe]<> 0) AND ([3_3_SumOfDcmlWo]<> 0)) then Depth3 = Depth3_winri
if ((([4_4_SumOfDcmlNe]<> 0) AND ([4_4_SumOfDcmlWo]<> 0)) then Depth4 = Depth4_winri
if ((([5_5_SumOfDcmlNe]<> 0) AND ([5_5_SumOfDcmlWo]<> 0)) then Depth5 = Depth5_winri
if ((([6_6_SumOfDcmlNe]<> 0) AND ([6_6_SumOfDcmlWo]<> 0)) then Depth6 = Depth6_winri
if ((([7_7_SumOfDcmlNe]<> 0) AND ([7_7_SumOfDcmlWo]<> 0)) then Depth7 = Depth7_winri
```

Creating detailed and useful depth severance labels

- Python
 - Define Resulting Label

```
FindLabel = Depth1 &vbnewline& Depth2 &vbnewline& Depth3 &vbnewline& Depth4 &vbnewline& Depth5  
&vbnewline& Depth6 &vbnewline& Depth7  
End Function
```

(Note: email the author for Python samples!)

Python as a “GIS Intern”

Re-Cap

- Scheduling scripts
 - Let Python do the work while you sleep!
- File management
 - Backup First, Update Second
- Working with large datasets from different sources
 - Budget Constraints = Creativity Needed
- Creating detailed and useful depth severance labels
 - Give them what they want!

Python as a “GIS Intern”

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(Note: email the author for Python samples!)

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