

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee: _____

Spill Complaint
 Inspection NOAV

Tracking No: _____

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): Form 27 NFA

GENERAL INFORMATION

OGCC Operator Number: <u>69175</u>		Contact Name and Telephone	
Name of Operator: <u>Petroleum Development Corporation (PDC)</u>		Name: <u>John Nussbaumer</u>	
Address: <u>1775 Sherman Street, Suite 3000</u>		No: <u>303-860-5800</u>	
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80203</u>		Fax: <u>303-860-5838</u>	
API/Facility No: <u>05-045-12892</u>		County: <u>Garfield County</u>	
Facility Name: <u>Mesa 19 Pad</u>		Facility Number: _____	
Well Name: <u>Puckett</u>		Well Number: <u>14D-24D</u>	
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SWSW SEC 24 T6S R97W 6th Principal Meridian</u> Latitude: <u>39.50342</u> Longitude: <u>-108.174013</u>			

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): produced water, condensate, and frac tank fluids

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation. Groundwater < 20 feet bgs.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Oil/gas development, open range

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: black, organic-rich, loamy topsoil underlain by shale

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water is located 545' northwest of the site. Water wells, wetlands and buildings are located greater than 0.75 mile from the site. Depth to groundwater is unknown.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	<u>6'N-S x 28'E-W x 2'D, and 30'N-S x 20'E-W x 4'D</u>	<u>Observations of soil staining and laboratory analysis</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
A Form 19 for the frac tank release was submitted on 10/17/2008. A Form 19 for the production tank release was submitted on 10/21/2008.

Describe how source is to be removed:
A Form 27 was submitted for both the frac tank and production tank releases on 2/9/2009.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:
Petroleum hydrocarbon impacted soil and ballast material is currently being land farmed onsite within a lined containment.

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Tracking Number: Name of Operator: PDC OGCC Operator No: 69175 Received Date: Well Name & No: Puckett 14D-24D Facility Name & No.: Mesa 19 Pad

REMEDIATION WORKPLAN (CONT.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.): Groundwater was not encountered.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required. The site was restored to pre-release grade and PDC's production facility remains at the site.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing. Is further site investigation required? [] Y [X] N If yes, describe: Approximately 18 cubic yards of petroleum hydrocarbon impacted soil and ballast material are currently being land farmed onsite within a lined containment. A composite soil sample (C01@2') was collected from the land farm stockpile on February 24, 2009 and submitted for analysis of Total Petroleum Hydrocarbons (TPH) by Environmental Protection Agency (EPA) Modified Method 8015. Soil analytical results indicated the TPH concentration is below the Colorado Oil and Gas Conservation Commission (COGCC) 1,000 mg/kg sensitive area allowable level. Based on the analytical results, PDC is requesting No Further Action status for this site. A topographic map of the area and site map are presented as Figures 1 and 2, respectively. Soil analytical results are attached and presented in Table 1.

Final disposition of E&P waste (land treated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): A composite soil sample was collected from the land farm and analytical results indicated the TPH concentration is below the COGCC 1,000 mg/kg sensitive area allowable level. The land farmed soil will be incorporated into the onsite earthen berms.

IMPLEMENTATION SCHEDULE

Table with 4 columns: Date Site Investigation Began (9/29/08), Date Site Investigation Completed (10/13/08), Remediation Plan Submitted (3/30/09), Remediation Start Date (9/29/08), Anticipated Completion Date (6/1/09), Actual Completion Date.

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: M. Scott Ghan, LT Environmental, as agent for PDC

Signed: [Signature] Title: Senior Environmental Scientist Date: 3/30/09

OGCC Approved: Title: Date:

TABLE 1
SOIL SAMPLE ANALYTICAL DATA
MESA 19 RELEASES
GARFIELD COUNTY, COLORADO
PETROLEUM DEVELOPMENT CORPORATION

SAMPLE ID	DATE	DEPTH (feet bgs)	TPH (mg/kg)
C01@2'	2/24/2009	2	66.1
COGCC Sensitive Area Allowable Level			1,000

< - Less than stated laboratory reporting limit

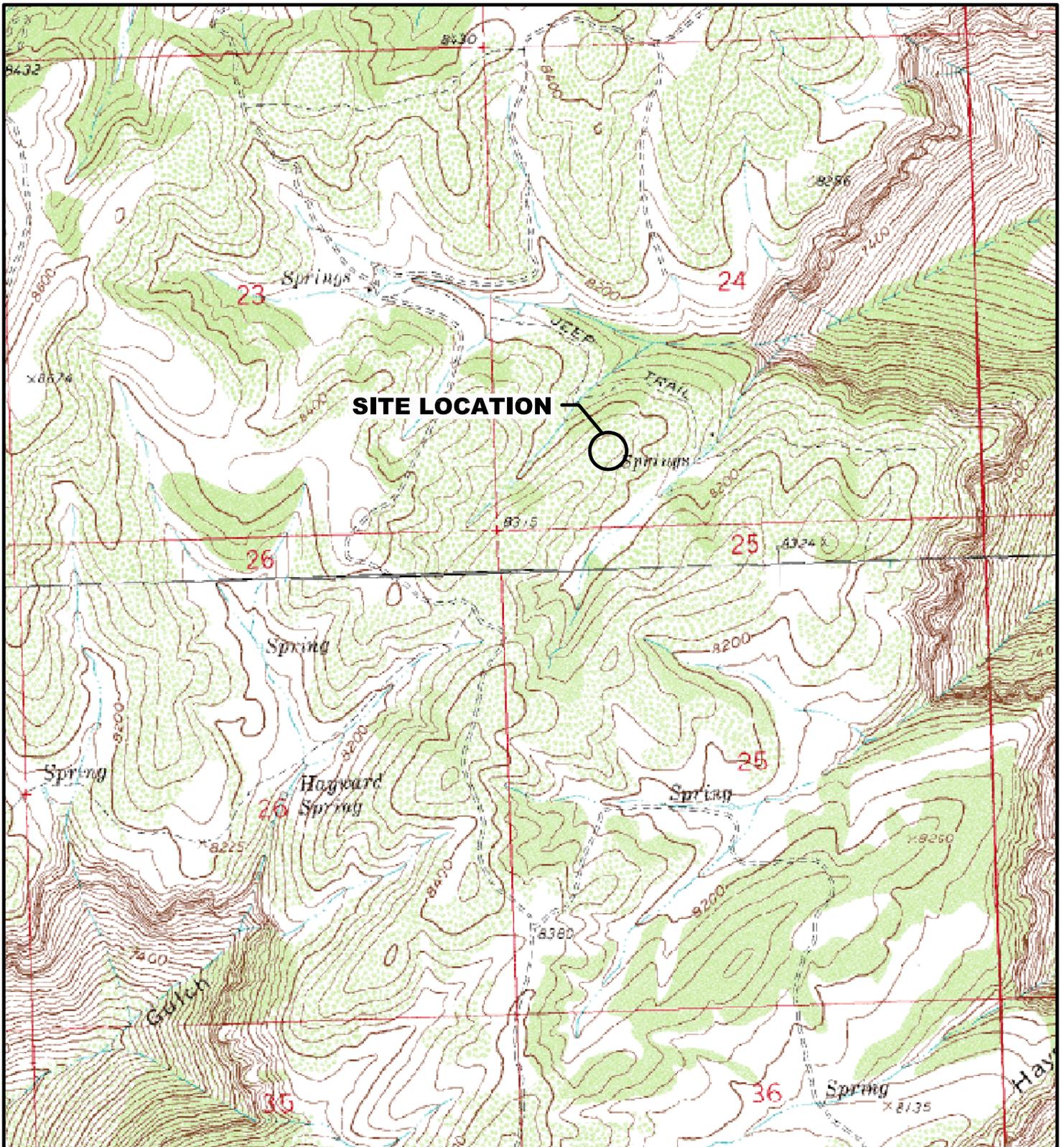
TPH - Total Petroleum Hydrocarbons

mg/kg - milligrams per kilogram

bgs - Below ground surface

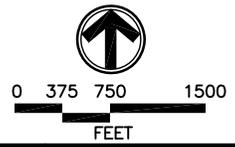
COGCC - Colorado Oil and Gas Conservation Commission





LEGEND

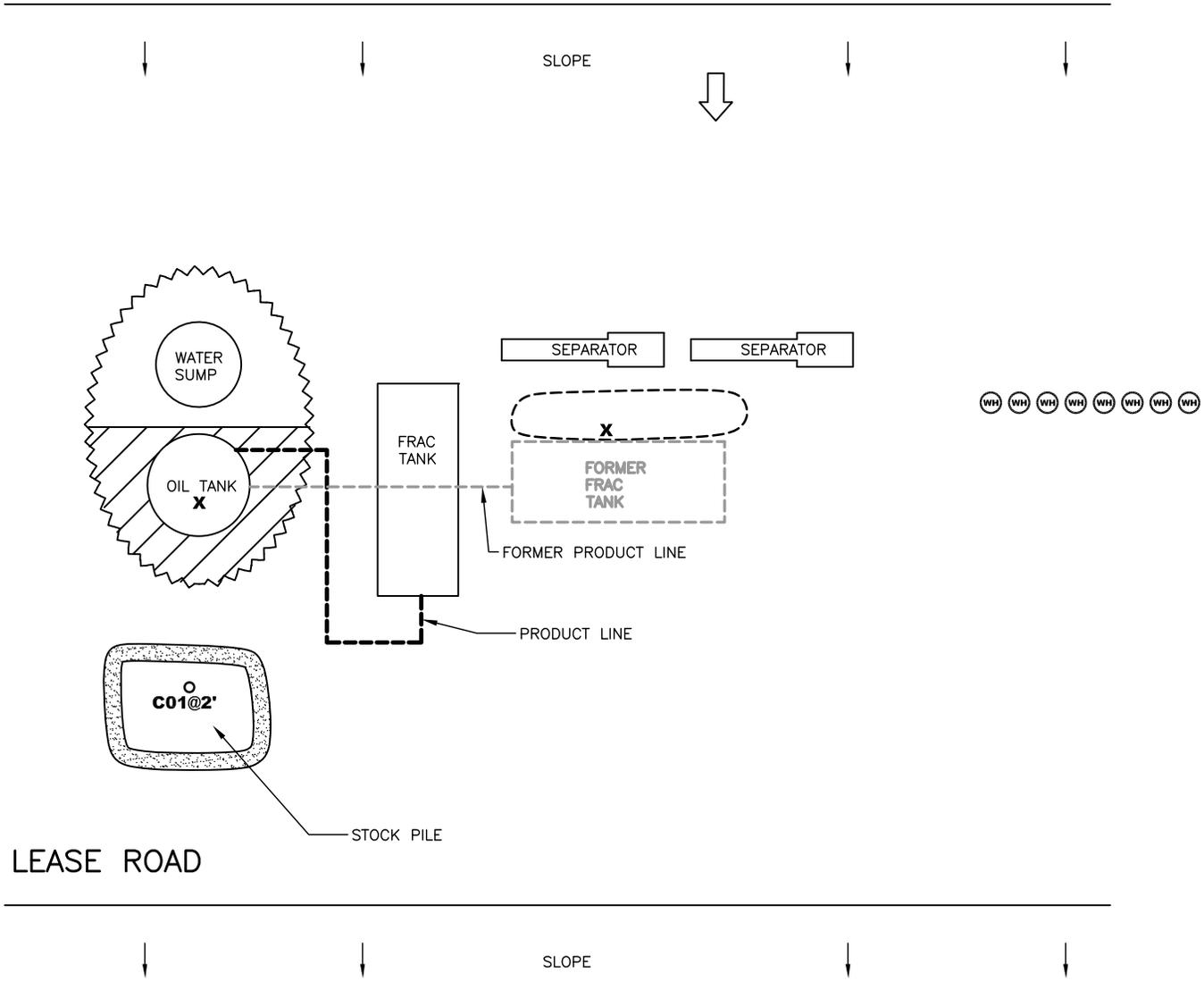
○ SITE LOCATION



SOURCE: TOPOZONE.COM
 USGS 7.5' QUADRANGLE
 (NAD27)

FIGURE 1
 SITE LOCATION MAP
 MESA 19 RELEASES
 SWSW 24 6S 97W
 GARFIELD COUNTY, CO
 PETROLEUM DEVELOPMENT CORPORATION





LEGEND

- B01@SURF** ○ SOIL SAMPLE LOCATION
- (WH) WELL HEAD
- ▬ BERM
- ~ STEEL CONTAINMENT
- ➡ ESTIMATED GROUNDWATER FLOW DIRECTION
- X RELEASE LOCATIONS
- - - - - EXTENT OF EXCAVATION ON 9/29/08
- ⊘ BALLAST MATERIAL REMOVED ON 10/13/08

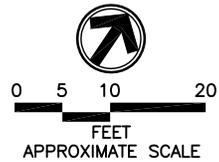


FIGURE 2
SITE MAP
MESA 19 PRODUCTION TANK RELEASE
SWSW 24 6S 97W
GARFIELD COUNTY, CO
PETROLEUM DEVELOPMENT CORPORATION





4640 Pecos Street | Unit C | Denver, Colorado 80211
303.433.1322 Phone 303.265.9645 Fax

March 02, 2009

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Scott Ghan
Project Number: PDCW0829
Project: Mesa 19 Frac Tank Release

Attached are the analytical results for Mesa 19 Frac Tank Release received by Origins Laboratory, Inc. 2/26/2009 12:00:00PM. Please let us know if you have any questions, or if we can help with anything at all.

A handwritten signature in black ink, appearing to read "Noelle E Doyle".

Laboratory Manager
Noelle E Doyle

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. This laboratory report is intended solely for the above addressee and it is only to be used and or reproduced in its entirety.

4640 Pecos Street | Unit C
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303.265.9645 | Fax



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Scott Ghan
Project Number: PDCW0829
Project: Mesa 19 Frac Tank Release

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
CO 1 @ 2'	X902100-01	Soil	2/24/2009 3:40:00PM	02/26/2009 12:00

Origins Laboratory, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle, Laboratory Manager

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LT Environmental, Inc.
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Arvada CO 80003

Scott Ghan
Project Number: PDCW0829
Project: Mesa 19 Frac Tank Release

CO 1 @ 2'
X902100-01 (Soil)

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

TPH-Carbon Chain by EPA Method 8015M

Gasoline (C6-C10)	ND	50.0	mg/kg	1	9B26005	02/26/2009	02/26/2009
Diesel (C10-C28)	66.1	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"
TPH - Carbon Chain Total	66.1	50.0	"	"	"	"	"

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Scott Ghan
 Project Number: PDCW0829
 Project: Mesa 19 Frac Tank Release

Extractable Petroleum Hydrocarbons by 8015M – Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9B26005 – Default Prep GC-Semi

Blank (9B26005-BLK1)

Prepared: 02/26/2009 Analyzed: 02/26/2009

Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Residual Range Organics (C28-C36)	ND	200	"							
TPH – Carbon Chain Total	ND	50.0	"							

LCS (9B26005-BS1)

Prepared: 02/26/2009 Analyzed: 02/26/2009

Gasoline (C6-C10)	ND	50.0	mg/kg				65-140			
Diesel (C10-C28)	151	50.0	"	200		75.6	60-140			

LCS Dup (9B26005-BSD1)

Prepared: 02/26/2009 Analyzed: 02/26/2009

Gasoline (C6-C10)	ND	50.0	mg/kg				65-140		25	
Diesel (C10-C28)	156	50.0	"	200		78.1	60-140	3.28	25	

Origins Laboratory, Inc.

Noelle E Doyle, Laboratory Manager

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Scott Ghan
Project Number: PDCW0829
Project: Mesa 19 Frac Tank Release

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

Origins Laboratory, Inc.

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Noelle E Doyle, Laboratory Manager