

Washington Remediation Project  
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May 22, 2007

Mr. James Webb  
Project Manager  
Division of Decommissioning/Waste Management  
U.S. Nuclear Regulatory Commission  
Mail Stop T-7E-18  
Washington, D.C. 20555-0001

and

Mr. Robert C. Maiers, P.E.  
Chief, Decommissioning Section  
Bureau of Radiation Protection  
Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
P.O. Box 8469  
Harrisburg, PA 17105-8469

Re: South Tar Pond Area Radiological Investigation Plan  
Molycorp Washington, PA Remediation Project  
License Number SMB-1393

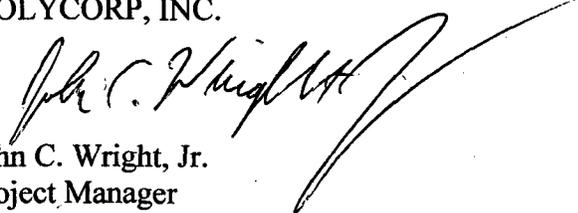
Dear Mr. Webb and Mr. Maiers:

In accordance with commitments made in my May 10, 2007 letter, enclosed is the Radiological Investigation Plan for the South Tar Pond Area (Site Area C-2) at the Molycorp, Inc. (Molycorp) Washington, PA Remediation Project. We anticipate completing the field work (test trenches & sample collection) next week. Analytical results will likely not be available for a least another week.

If you have any questions or comments, please contact me by phone, 724-222-5605, or email at [jwright@chevron.com](mailto:jwright@chevron.com). We will also be prepared to discuss the contents of this letter on the next Project Status Update Teleconference, scheduled for June 4, 2007.

Sincerely,

MOLYCORP, INC.



John C. Wright, Jr.  
Project Manager

Enclosure: Radiological Investigation Plan for the South Tar Pond Area

Mr. James Webb  
Mr. Robert C. Maiers, P.E

May 22, 2007  
page 2 of 2

cc. John Nicholson, NRC Region I  
Dwight Shearer, PADEP BRP  
Roy Woods, PADEP BRP  
George Dawes, Molycorp RSO  
Shane Brightwell, Molycorp Asst RSO, CHP  
Mark Lafferty, Chevron EMC  
Al Shuckrow, Malcolm Pirnie

**Radiological Investigation Plan**  
**South Tar Pond Area**  
**Molycorp Washington Remediation Project**

**Introduction**

Molycorp recently discovered three football-size pieces of radioactive slag-like fragments in materials excavated from the South Tar Pond. These discoveries are believed to be isolated instances associated with the northern berm and western perimeter area of the South Tar Pond where some, primarily non-radioactive, slags may have been placed when the berm was built up in 1985. Although the presence of radioactive slag pieces in these areas are believed to be rare and not widespread, Molycorp has instituted precautionary radiological control measures to properly manage any additional radiological materials that may be encountered in this area and to assure protection of the health and safety of site workers. In addition, Molycorp has designed an investigation plan as described below to assess the magnitude and extent of potential radiological contamination in the South Tar Pond area.

**Background**

Manufactured Gas Plant (MGP) tar present on the Molycorp site was generated by the Pennsylvania Atlas Chemical Company which supplied gas to the Hazel-Atlas Glass Company from about 1925-1931. These facilities were located east of what now is Interstate 70 (I-70) which was constructed in the late 1950s. PENNDOT drawings for construction of I-70 show the presence of tar ponds on what now is the Molycorp property.

When Molycorp purchased the property in 1976, two MGP tar ponds existed –one west of I-70 and north of Chartiers Creek (North Tar Pond) and one west of I-70 and south of Chartiers Creek (South Tar Pond). In 1985, Molycorp excavated the North Tar Pond and consolidated the material in the South Tar Pond. At that time, an access road to the South Tar Pond was constructed utilizing ferromolybdenum slag and a berm was built up around the South Tar Pond to contain the additional material from the North Tar Pond.

Molycorp conducted a Supplemental Site Characterization Study in 2003-2004 to investigate both radiological and non-radiological conditions across the site. As part of this study, a 100% walkover survey of the slag access road leading to the South Tar Pond was performed. In addition, two borings were placed in the access road and core scans were conducted. No evidence of radiological contamination was detected.

Borings also were placed in the berm of the South Tar Pond and in the pond itself. No slag was detected in any of these borings.

Figure 1 shows the South Tar Pond (C2) area including the berm and the slag access road as they existed at the time of the characterization study.

Because the South Tar Pond area was not associated with Molycorp manufacturing operations, was geographically distant from the manufacturing areas, was acquired long

after radioactive slags were produced by Molycorp, and investigations in the vicinity revealed no evidence of radioactive materials, the South Tar Pond was considered to be a non-radiological area.

Subsequent to the site characterization, a Cleanup Plan was developed to address non-radiological conditions on the site. The Cleanup Plan included excavation and off-site disposition of MGP tar contaminated materials present in the South Tar Pond and in a contiguous area to the west of the pond which was found to contain MGP tar contamination during the characterization.

Because of the proximity of the South Tar Pond to I-70 to the east and a railroad embankment to the south, the Cleanup Plan included installation of sheet piling along the eastern and southern perimeter areas of the pond to structurally protect the highway and railroad. Pre-trenching to remove boulders prior to installation of the sheet piling was carried out along the eastern and southern sections of the berm (Figure 2) on December 4 and 5, 2006. No slag was observed in the pre-trenching excavation.

Sheet pile installation occurred during the period December 19-21, 2006. Excavation of MGP tar impacted material began in early January, 2007. Excavated material was stockpiled along the access road north of the South Tar Pond. Material then was loaded into trucks for transport and disposal at the nearby Waste Management Arden Landfill.

Excavation activity was suspended during the period February 12-April 5, 2007 during installation of tie-backs and walers in the sheet pile walls. Upon completion of that activity, excavation and shipment of MGP tar impacted material was resumed.

On May 3, 2007, a triaxle truck hauling MGP tar material excavated from the South Tar Pond set off the portal radiation alarm as it was entering the Waste Management Arden Landfill facility. The truck then was scanned by landfill personnel, and the presence of radioactivity confirmed.

Site Assistant RSO Shane Brightwell was dispatched to the landfill to assess the situation. Upon his return to the site, he reported that a section of the truck evidenced elevated readings which he believed to be caused by Thorium-232 chain radionuclides. Subsequently, it was concluded that the truck should return to the Molycorp site.

When the truck returned to the site and dumped its load on the concrete transshipment pad, the source of the radiation was found to be a single piece of slag about 12" x 12" x 6". All remaining material was determined to be at background levels, based upon scans.

### **Initial Measures**

Subsequent to the May 3<sup>rd</sup> discovery outlined above, several actions were completed:

1. A walkover survey utilizing a 2"x2" NaI detector was performed around the perimeter of and in the South Tar Pond excavation. No areas of elevated activity were identified in this survey.
2. A walkover survey of previously stockpiled material from the South Tar Pond load-out area was performed. One rock-like piece of material with elevated

radiological activity was identified. A sample of this material was sent to the laboratory for gamma spectroscopy analysis.

3. A small piece of slag-like material impregnated with a metallic substance which exhibited elevated activity was discovered in the western sidewall of the South Tar Pond excavation. A sample of this material was sent to the laboratory for gamma spectroscopy analysis. The location of this sample is shown on Figure 2.
4. A walkover survey utilizing a micro R meter was performed in and around the South Tar Pond excavation area. No dose rates above background levels were measured.
5. A contamination survey was performed in the cab of the dozer being used in the South Tar Pond excavation area and in the access/break trailer located near the Caldwell Avenue entrance. No contamination was found.
6. Personnel dosimetry requirements have been instituted site wide in all remediation areas to include non-radiological areas as well as radiological areas.
7. Excavation into the northern berm and western face of the South Tar Pond has been prohibited until further investigation of these areas has been completed.
8. A walkover dosimetry study will be performed each day that excavation is performed in the South Tar Pond.
9. Equipment/facilities associated with the South Tar Pond remediation will be included in routine contamination surveys.
10. Security measures including locking the access gate to the area, inspection by the security guard during non-work hours, and lighting after dark were reemphasized.

### **Current Conditions**

Most of the bulk excavation in the South Tar Pond has been completed except for a 40 foot zone adjacent to the sheet pile walls, the northern berm and a small area west of the pond. Excavations along the sheet pile walls were suspended pending installation of a second row of tie-backs and walers.

Figure 2 depicts current conditions in the South Tar Pond excavation area. The eastern berm and a portion of the southern berm were completely removed during pretrenching activities prior to sheet pile installation. No slag was discovered during this activity.

The remainder of the southern berm and the western berm were completely removed during pond excavation activities. No slag was discovered during excavation in these areas.

The northern berm remains intact. A dewatering sump installed adjacent to the northern berm (point A on Figure 2) is believed to be the source area for the slag piece discovered in the truck and the slag piece found in the load-out area stockpile.

Point B on Figure 2 is the approximate location where the third piece of radioactive slag-like material was discovered in the face of the excavation. There appears to be a thin lens

of slag-like material about 2-4 feet below ground running along the south east face of the excavation from this point. This lens of material was scanned with a micro R meter and no additional zones of elevated activity were evident. This area is west of the South Tar Pond.

### **Investigation Plan**

During excavation of the South Tar Pond, the only slag that has been observed is associated with the northern berm area and with the western face of the excavation, west of the pond itself. Scanning in accessible areas has not detected any areas of elevated activity other than the three pieces of slag described above.

In order to further investigate the potential presence of radioactive slag in these areas, Molycorp plans to excavate 21 small test pits at the approximate locations shown on Figure 3. These test pits will be excavated using a small back-hoe. The depth of the test pits will vary from approximately four feet to six feet. Excavated material and the excavations will be scanned by a health physics technician using a Ludlum 2221 ratemeter with a 44-10 NaI detector. If scanning detects areas of elevated activity in the test pits, these areas will be sampled for gamma spectroscopy analysis. In any case, at least one sample will be obtained from each test pit and submitted for gamma spectroscopy analysis.

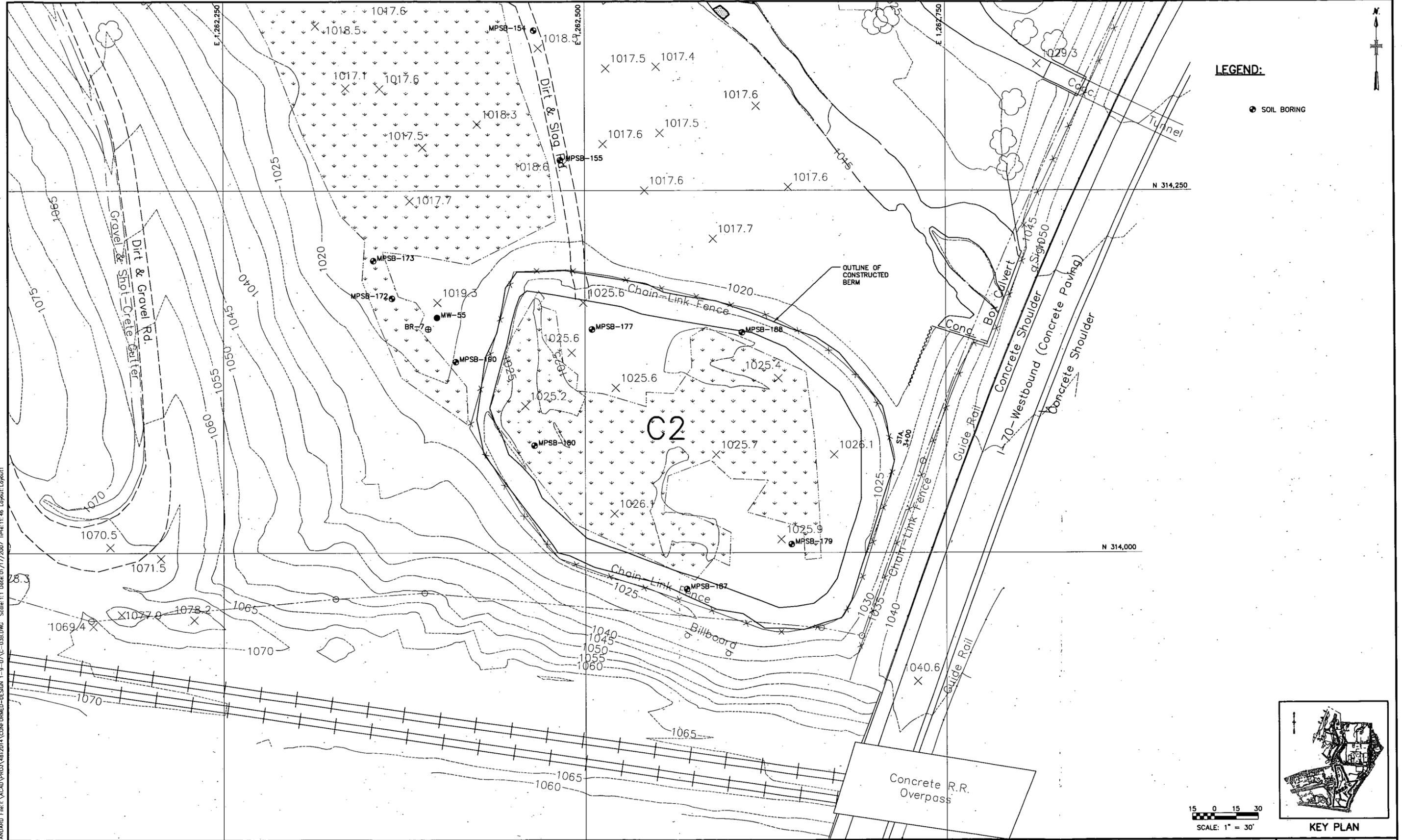
Test pit locations will be recorded by a GPS Surveyor and subsequently, the test pit excavations will be backfilled with excavated material.

All scanning, excavation and sampling activities will be conducted in accordance with the existing approved Health and Safety Plan (HASP) and Radiological Protection Procedures (RPP). A specific Radiation Work Permit (RWP) and Job Safety Analysis (JSA) will be developed and implemented prior to intrusive activities. Test pit excavation and sampling activities will be monitored by a qualified Health Physics Technician.

### **Report**

Results of the field scanning and laboratory analyses will be reviewed and summarized in a report. The report will include a sample location map and photographs. An assessment of the extent and magnitude of radioactive slag in the investigation area will be made. If warranted, a recommendation will be made regarding revision of the excavation approach for the South Tar Pond Berm. The need for additional health and safety procedures, including radiological controls, associated with this activity also will be evaluated.

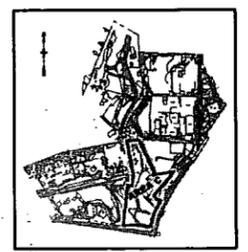
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**LEGEND:**  
 ● SOIL BORING



15 0 15 30  
 SCALE: 1" = 30'



**KEY PLAN**

**MALCOLM  
 PIRNIE**

REVISIONS			
NO.	BY	DATE	REMARKS

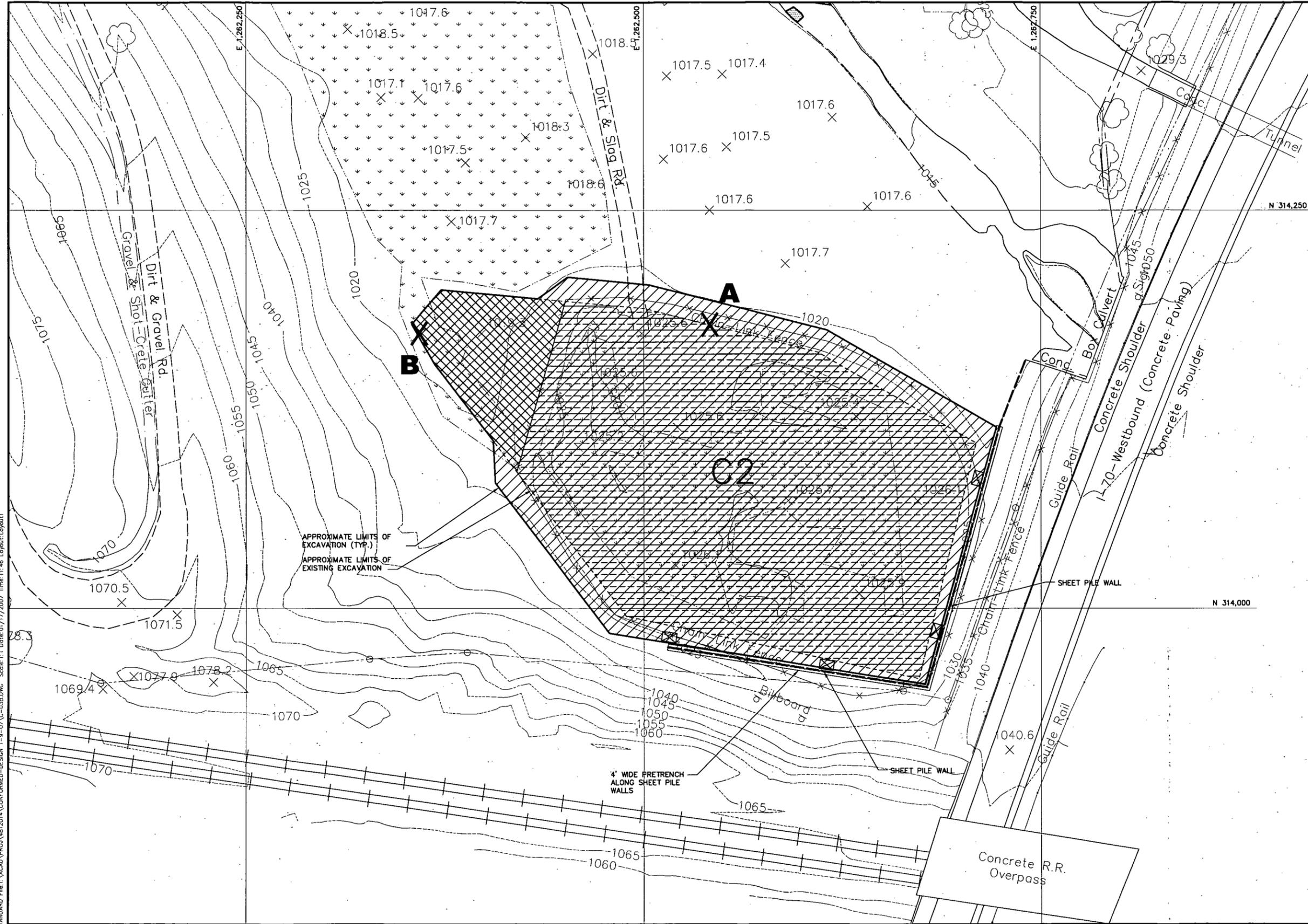
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 DWN: TCS  
 CKD: KRM

**MOLYCORP, INC  
 WASHINGTON, PA**  
**SITE REMEDIATION CONSTRUCTION**

**FIGURE 1  
 SOUTH TAR POND AREA  
 BEFORE EXCAVATION**

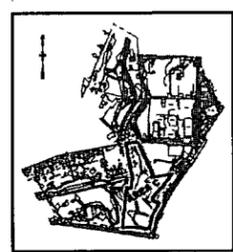
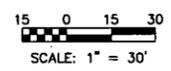
COPYRIGHT © 2005  
 MALCOLM PIRNIE, INC.  
 DATE: MAY 2007  
 C SHEET \_\_\_\_ OF \_\_\_\_  
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**LEGEND:**

- APPROXIMATE LIMITS OF EXCAVATION (0'-5')
- APPROXIMATE LIMITS OF EXCAVATION (10'+)
- APPROXIMATE LIMITS OF TOP OF EXCAVATION
- A** DEWATERING SUMP
- B** SIDEWALL SLAG LOCATION



**KEY PLAN**

**MALCOLM  
PIRNIE**

REVISIONS			
NO.	BY	DATE	REMARKS

DES: BEG  
DWN: TCS  
CKD: KRM

**MOLYCORP, INC  
WASHINGTON, PA**

**SITE REMEDIATION CONSTRUCTION**

**FIGURE 2  
SOUTH TAR POND AREA  
CONDITIONS, MAY 7, 2007**

DATE: MAY 2007  
C SHEET 03B OF 7  
CAD REF. NO. C-03B

