

## **Dimarzio Data Request dated 9/21/10**

Subject: PuP plus PDCF vs PuP-PDC for Resource Use  
Question: See Attachment 1

Response: Blunt dated 9/22/10

Just a note. Best I can tell the PDCF+PuP column is just the sum of the PuP and the PDCF columns. Also keep in mind that in the operations numbers I have found several numbers that are not in the data calls we submitted. As to PuP-PDC (which is the PDC/PuP combo) the construction numbers were estimated by URS. Some of those numbers were from the 1999 SPD EIS, since take-offs are not yet available.

Response: Blunt dated 9/23/10

For the operational info, if you assume the diesels would operate 250 hrs/yr (I assumed 500 hrs/yr for PDC) then the diesel fuel used for the three diesels listed in the Data Call for PuP would be more like 14,700 gal/yr (55,646 l/yr). If you want to be conservative and assume 500hrs then these numbers double. For your info a 20KW diesel uses about 1.6 gal/hr, while a 410 kw diesel uses about 28.6 gal/hr. And we listed two 410 kw Diesels in the Data Call response. So that is about 58.8 gal/hr for all three engines combined.

Also I think that the Nitric Acid and Aluminum Nitrate usage for PuP is a typo. I can't find them anywhere in any Data Call or in Table E-7 of the 1999 SPD EIS. Finally the Inert Material (e.g Sand) is from the PuP (6MT for WIPP) option, not the "PuP with ASF-2 feed" like all the other info that SAIC put in the table.

Other than that, operational Resource used for PuP looks right to me.

Response: Blunt dated 9/23/10

There are also some corrections that need to be made based on looking at all the data calls. I have updated the Operations table with the values (in red) I think are representative. Randy Reddick and Bob Bayer should weigh in if they think I'm off base somewhere.

One other thing. the Diesel fuel number that we listed in the PDCF/PuP combo Data Call was based on 500 hrs of Ops. It is probably more appropriate to use 250 hrs. So I have corrected all the Diesel Fuel based on 250 hrs of diesel run time. This is somewhat conservative and a compromise as the current federal regulations only allow for 100 hrs of non-emergency run time even though the State regulations still allow 500 hours for existing diesels

The changes to the steel number are based on 3013 cans for PDCF and PDC/PuP combo.

Some of the numbers appear to be from the Incremental PuP Scope (6MT) which was requested for PuP and PDCF/PuP combo, but not PDCF greenfield facility. Typically the PDCF value is zero while there is a value for PuP, PuP+PDCF and PuP-PDCF. (see attached Blunt Response C).

Response: Bayer dated 9/23/10

Could you add sodium hydroxide to PuP numbers - it would be used to neutralize the acidic rinse solutions before discard. use 420 kg like nitric acid.

Also for consistency - this list below helped me consider non-process users which I overlooked.  
- add for PuP

cleaning solvents - add some for PuP if the use is for general floor cleaning. use 50 KG.

lubricating oils - PuP would be a minor user as well for leak detector pumps, etc. Use 100 liters as bounding.

LN2 - add 400 kg for use with NDA equipment as a bounding estimate. We were considering electronic coolers but LN2 could be used as well.

Response: Bayer dated 9/23/10

PuP would use nitric acid and Aluminum Nitrate as part of the wash process to cleanup a portion of the 6 mt for MFFF. it was included in PuP datacall as drums per year.

Response: Reddick dated 9/23/10

The PDC construction numbers have been developed by me through my e-mails and phone calls with you, Lewis, Morgan, Issy, and Bill. Because very little of the needed information has been formally estimated at this early stage in the project we have made estimates based on best available information. With no formal estimates, we have relied on PDCF estimates (trying to account for differences in the two projects) and your feedback - such as yards of concrete looking way too high. You'll notice from the SAIC table that I was unable to justify an estimate for soil and lumber primarily since information is just not available. So, any help from Lewis would be appreciated.

The numbers returned by SAIC in the table below are not recognizable at first glance for two reasons: 1) SAIC summed several of the resources over the entire construction period - the numbers we provided were annual averages, and 2) SAIC converted to metric units. A group meeting won't be helpful at this time. However, I think a call between Lewis and myself would be good. We can go over each entry and the approach used for an estimate.

Attachment 1



**FW: PuP plus PDCF vs PuP-PDC for Resource Use**

**Dimarzio, John A.** to: clayton.shedrow

09/21/2010 03:04 PM

History: This message has been forwarded.

**FYI**

**From:** Dimarzio, John A.  
**Sent:** Tuesday, September 21, 2010 2:55 PM  
**To:** 'Cynthia.Williams';  
**Cc:** sachiko-w.mcalhany@nnsa.srs.gov; virginia.kay; 'drew.grainger'; Roles, Gary W.  
**Subject:** FW: PuP plus PDCF vs PuP-PDC for Resource Use

The differences in these numbers may all be explainable, but some certainly do look odd. You may want to have the appropriate project staff review this comparison to ensure we are using the correct information.

**Thanks...John**

**From:** Roles, Gary W.  
**Sent:** Monday, September 20, 2010 5:23 PM  
**To:** Dimarzio, John A.  
**Subject:** PuP plus PDCF vs PuP-PDC for resource use.

FYI This is what I've estimated. Probably should let me check the numbers...but you can see that the numbers make sense in many cases but not all cases.

**Construction Resource Use Over Entire Construction Period**

Resource	PuP	PDCF	PuP + PDCF	PuP-PDC
<b>Land Use</b>				
Disturbed land (hectares)	0.81	20	21	6
<b>Labor</b>				
Full Time Equivalents	630	1,024	1,654	22,000
<b>Utilities</b>				
Electricity (megawatt-hours)	0	552,000	552,000	56,100
Diesel & Gasoline (Liters)	295,640	990,000	1,285,640	2,206,888
Water (Liters)	28,769	204,411,600	204,440,369	396,000,000
<b>Resources</b>				
Steel (metric tons)	1,542	19,051	20,593	5,443
Asphalt (metric tons)	1,633	0	1,633	181
Concrete (cubic meters)	0	97,862	97,862	34,405
Crushed stone (metric tons)	1,542	0	1,542	3,429
Sand and gravel (metric tons)	680	0	680	491,991
Soil (cubic meters)	4,970	0	4,970	0
Lumber (board feet)	16,000	0	16,000	0

**Annual Operational Resource Use**

<b>Resource</b>	<b>PuP</b>	<b>PDCF</b>	<b>PuP + PDCF</b>	<b>PuP-PDC</b>
<b>Labor (per year)</b>				
Full-time equivalent	56	507	563	500
<b>Utilities (per year)</b>				
Electricity (megawatt-hours)	21,900	92,000	113,900	36,000
Diesel fuel (Liters)	1,893	17,000	18,893	709,763
Gasoline (Liters)	0	0	0	0
Water (Liters)	552,668	61,000,000	61,552,668	61,000,000
<b>Materials (per year)</b>				
Glass frit (kg)	0	0	0	0
Binder (kg)	0	0	0	0
Precursor (kg)	0	0	0	0
Steel (kg)	1,701	0	1,701	340
Absorbents (kg)	0	0	0	0
Fly Ash (kg)	0	0	0	0
Portland cement (kg)	0	0	0	0
Slag (kg)	0	0	0	0
Argon (cubic meters)	449	95,000	95,449	95,000
Argon-methane P-10 (cubic meters)	213	0	213	0
Carbon dioxide (cubic meters)	355	0	355	0
Chlorine (cubic meters)	0	0	0	62
Helium (cubic meters)	248	14,000	14,248	14,000
Hydrogen (cubic meters)	11	0	11	450
Nitrogen (cubic meters)	410	20,000	20,410	20,000
Nitrogen Tetroxide (cubic meters)	0	0	0	0
Oxygen (cubic meters)	157	1	158	330
Boric acid (kg)	0	0	0	0
Formic acid (kg)	0	0	0	0
Nitric acid (kg)	420	0	420	420
Phosphoric acid (kg)	0	240	240	240
Sulfuric acid (kg)	0	470	470	470
Sodium hydroxide (kg)	0	0	0	0
Aluminum nitrate (kg)	437	0	437	437
Aluminum sulfate (kg)	0	960	960	960
Bentonite (kg)	0	480	480	480
Copper formate (kg)	0	0	0	0
Gadolinium nitrate (kg)	0	0	0	0
Hydrazine (kg)	0	0	0	0
Hydrogen peroxide (kg)	0	0	0	0
Hydroxylamine nitrate (kg)	0	0	0	0
Liquid nitrogen (kg)	0	1,100	1,100	1,100
Manganese nitrate (kg)	0	0	0	0
Oxalic acid dehydrate (kg)	0	0	0	0
Polyelectrolyte (kg)	0	240	240	240
Polyphosphate (kg)	0	0	0	0

Porogen (kg)	0	0	0	0
Potassium flouride (kg)	0	0	0	0
Potassium nitrate (kg)	0	0	0	0
Silver nitrate (kg)	0	0	0	0
Sodium carbonate (kg)	0	0	0	0
Sodium hypochlorite (kg)	0	0	0	0
Sodium nitrite (kg)	0	0	0	0
Sodium sulfite (kg)	0	0	0	0
Sodium tetraphenylborate (kg)	0	0	0	0
Sodium titanate (kg)	0	0	0	0
Zinc stearate (kg)	0	0	0	0
Zirconium oxide (kg)	0	0	0	0
Cleaning solvents (kg)	0	140	140	140
Corrosion inhibitor (kg)	0	0	0	0
Dodecane (Liters)	0	0	0	0
Potassium flouride solution (Liters)	0	0	0	0
Tributyl phosphate (Liters)	0	0	0	0
Uranyl nitrate (Liters)	0	0	0	0
Hydraulic fluid (Liters)	0	976	976	0
Lubricating oils (Liters)	0	976	976	1,600
Inert material (e.g., sand) (kg)	5,400	0	5,400	0

**G.W. Roles** | SAIC  
Nuclear Engineer | ILPSG

[Redacted]

Science Applications International Corporation

[Redacted]

www.saic.com

Energy | Environment | National Security | Health | Critical Infrastructure

Please consider the environment before printing this email.

[Redacted]